

WHAT IS CLAIMED IS:

1. A decontaminant comprising: OPH enzyme, OPAA enzyme, DFPase
5 enzyme, dehalogenase enzyme, quaternary ammonium salt, and a pH control reagent.
2. The decontaminant of claim 1, wherein said decontaminant is in dry powder form.
3. The decontaminant of claim 1, further comprising a foaming reagent
10 and a fire-fighting agent.
4. The decontaminant of claim 3, wherein said fire fighting reagent is one or more of ColdFire® and Fire Choke®.
5. The decontaminant of claim 1, wherein said quaternary ammonium salt is dodecyldimethyl (3-sulfopropyl) ammonium hydroxide or bacterial
15 HD hydrolase.
6. The decontaminant of claim 5, wherein said quaternary ammonium salt is added in an amount of 0.5-1.0 mg/ml.
7. The decontaminant of claim 1, wherein said dehalogenase enzyme is *Rhodococcus* dehalogenase enzyme.
- 20 8. The decontaminant of claim 1, further comprising water and one or more additives selected from the group consisting of haloperoxidase and their mutants, lysozyme, aqueous detergents, dry detergents, odor removal compositions, solvents, and hand washing solution.
9. The decontaminant of claim 1, further comprising water.

10. The decontaminant of claim 8, wherein said dry detergent is Tide Free®.
11. The decontaminant of claim 8, wherein said aqueous detergent is Dawn® detergent.
- 5 12. The decontaminant of claim 8, wherein said odor removal composition is Odor Seal®.
13. The decontaminant of claim 1, wherein said decontaminant is non-corrosive, non-caustic and non-flammable and is effective against CB warfare agents.
- 10 14. A non-corrosive, non-caustic and non-flammable decontaminant in dry powder form comprising:
- (a) OPH enzyme;
 - (b) OPAA enzyme;
 - (c) DFPase enzyme;

15 (d) dehalogenase enzyme;

 - (e) quaternary ammonium salt;
 - (f) a pH control reagent;
 - (g) a fire fighting agent; and
 - (h) a foaming agent.
- 20 15. The decontaminant of claim 14, further comprising one or more additives selected from haloperoxidase and their mutants, lysozyme, aqueous detergents, dry detergents, odor removal compositions, solvents, hand washing solution, and EcoTru®.

16. The decontaminant of claim 14, wherein said fire fighting reagent is one or more of ColdFire® and Fire Choke®.

17. The decontaminant of claim 14, quaternary ammonium salt is dodecyldimethyl (3-sulfopropyl) ammonium hydroxide or bacterial HD hydrolase.

18. The decontaminant of claim 14, wherein said quaternary ammonium salt is added in an amount of 0.5-1.0 mg/ml.

19. The decontaminant of claim 14, wherein said dehalogenase enzyme is *Rhodococcus* dehalogenase enzyme.

20. A non-corrosive, non-caustic and non-flammable decontaminant comprising:

- (a) OPH enzyme;
- (b) OPAA enzyme;
- (c) DFPase enzyme;
- (d) dehalogenase enzyme;
- (e) quaternary ammonium salt;
- (f) a pH control reagent;
- (g) a fire-fighting agent;
- (h) a foaming agent; and
- (i) water.

21. A non-corrosive, non-caustic and non-flammable decontaminant in dry powder form comprising:

- (a) OPH enzyme in an amount of 0.1-0.5 g/L;

- (b) OPAA enzyme in an amount of 0.01-0.05 g/L;
- (c) DFPase enzyme in an amount of 0.01-0.05 g/L;
- (d) dehalogenase enzyme in an amount of 1 g/L;
- (e) quaternary ammonium salt in an amount of 0.5-1.0 g/L;
- 5 (f) a pH control reagent in an amount of 5-25 g/L;
- (g) a fire fighting agent/foaming agent in an amount of 0.1 g/L;
- and
- (h) a firefighting agent in an amount of 3 g/L.

22. The decontaminant of claim 21, wherein said ingredients are less than
10 5mm in size.

23. The decontaminant of claim 21, wherein said decontaminant is a personal
decontaminant and said ammonium carbonate is present in an amount of 5 g/L.

24. The decontaminant of claim 21, wherein said decontaminant is for
decontaminating non-human surfaces and said ammonium carbonate is present in an
15 amount of 25 g/L.

25. The decontaminant of claim 21, wherein said enzymes are first prepared
by lyophilization of liquid enzymes in the presence of trehalose sugar and ground to a
powder form.

26. The decontaminant of claim 21, wherein said pH control agent is added to
20 adjust a pH of said decontaminant in use to 8.5-9.9.

27. A decontaminant for agricultural decontamination of pesticides
comprising: OPH, ColdFire®, and ammonium carbonate in dry powder form.

28. The decontaminant of claim 27, wherein said decontaminant is dissolved in water before use.

29. A method of making a non-corrosive, non-caustic and non-flammable decontaminant comprising:

- 5 (a) mixing OPH enzyme, OPAA enzyme, DFPase enzyme, dehalogenase enzyme, quaternary ammonium salt, a pH control reagent, a fire-fighting agent, and a foaming agent;
- (b) adding water; and
- (c) dissolving said dry ingredients in said water.

10 30. The method of claim 29, wherein said dry ingredients also include one or more optional additives selected from haloperoxidase and their mutants, lysozyme, aqueous detergents, dry detergents, odor removal compositions, solvents, hand washing solution, and EcoTru®.

31. A method of making a decontamination formulation comprising:

- 15 (a) mixing ColdFire® and Fire Choke® with enzyme power, said enzyme powder comprising OPH enzyme, OPAA enzyme, DFPase enzyme, dehalogenase enzyme;
- (b) adding DDSAH powder to the ingredients in step a and mixing;
- (c) adding lysozyme/haloperoxidase enzymes to the mixed ingredients in
- 20 step b and mixing;
- (d) adding ammonium carbonate to the mixed ingredients in step c and mixing; and
- (e) adding water to the mixed ingredients in step d before use.

32. A method of decontamination a surface comprising applying the decontaminant of claim 20 to said surface.

33. The method of decontamination of a surface of claim 32, wherein said decontaminant is applied by spraying.

5 34. The method of decontamination of a surface of claim 32, wherein said decontaminant is in the form of a foam and is applied at a thickness of three inches.